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EXAMINER
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KASTURE, DNYANESH G

ART UNIT	PAPER NUMBER
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3746

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/562,628	WINKLER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DNYANESH KASTURE	3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-36 and 38-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-36 and 38-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1, 5 – 36 and 38 - 44 are objected to because of the following informalities:
  2. In Re Claim 38, the term "which outside diameter corresponds" is improper syntax as mentioned in the previous office action. This term should be "said outside diameter corresponds"
  3. In Re Claim 1, there is a typographical error in Line 16: "wnich" should be – which --.
  4. In Re Claim 1, it is not clear why two terms "liquid-tight" and "fluid-tight" are being used to address what appears to be the same limitation.
  5. In Re Claim 1, it is suggested that the phrase "being integrally formed" in Line 31 be clarified to say – being integrally formed with the closure arrangement --.
  6. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1, 5 – 36 and 38 – 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. In Re Claim 1, the side of the bearing tube referred to in the phrase "a bearing side end, close to said thrust bearing" (Line 12) is the same side of the tube as "side remote from the external rotor" (Line 16). Therefore it is not clear why different terminology is being used to address the same element. Further how can an opening, which is an empty space, have a shoulder ? (Line 14: "a shoulder of said bearing tube receiving opening")

10. In Re Claim 5, "an opening" has already been mentioned in Claim 1, Line 14. If the opening in this claim is the same element then the phrase – said opening – should be used.

11. In Re Claim 7, "a radial projection" has already been mentioned in Claim 1, Line 16. If the radial projection in this claim is the same element then the phrase – said radial projection – should be used.

12. In Re Claim 23, the phrase "said transition region" lacks antecedent basis.

13. In Re Claim 28, "said bearing" should be "said bearing arrangement" to be consistent with Claim 1.

14. In Re Claim 29, the limitation "a flange portion (78) that is formed with a flange opening (80) has already been substantially mentioned in claim 1, therefore it is not clear why it is being repeated here. Additionally, "a cover" has already been mentioned in Claim 1, therefore this should be -- said cover --.

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15. In Re Claim 34, "a bearing for the shaft" is indefinite because "a thrust bearing" as stated in Claim 1 is the same element. As suggested in the previous office action, the phrase "a bearing for the shaft" should be modified to -- said thrust bearing for the shaft --.

16. In Re Claims 39, 40 and 44, "the sintered bearing" lacks antecedent basis because the word "sintered" was deleted from claim 38.

17. In Re Claim 43, "an axial bearing for the shaft" is indefinite because "a thrust bearing" as stated in Claim 1 is the same element. As suggested in the previous office action, the phrase "an axial bearing for the shaft" should be modified to "said thrust bearing for the shaft".

18. In Re Claim 44, "a resilient latching member" should be -- said resilient latching member -- as mentioned in the previous office action, since the latching member has already been stated in Claim 1. Further, "counteracts pulling of the installed shaft (34) out of the sintered bearing" appears to be the same limitation as "preventing any pulling of said rotor shaft out of said bearing arrangement" in Claim 1, therefore it is not clear why it is being repeated here.

19. The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

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20. Claim 32 is rejected under 35 U.S.C. 112, fourth paragraph, for failing to specify a further limitation of the subject matter in the parent claim.

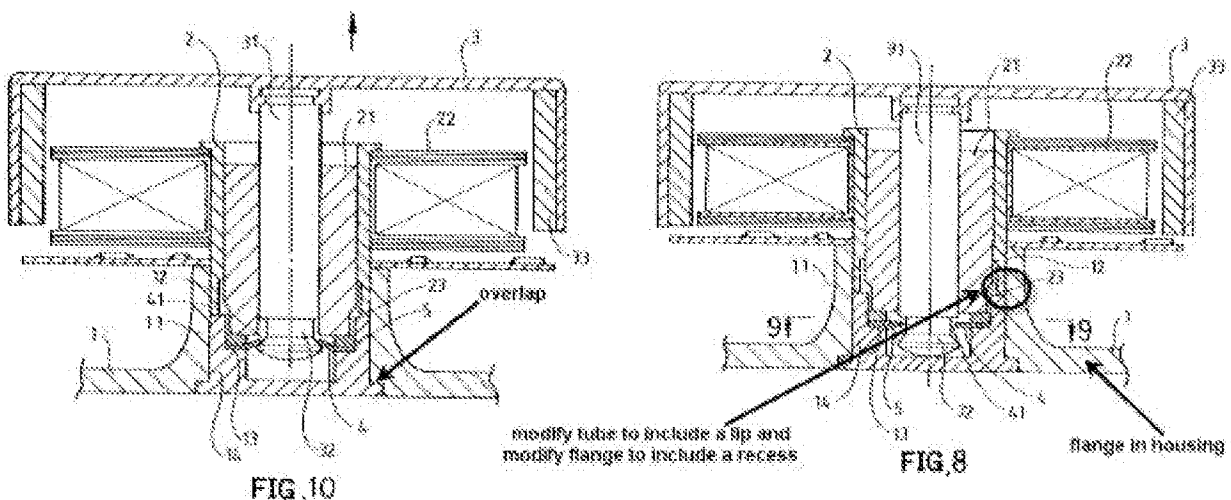
21. In Re Claim 32, all the claimed limitations are already present in Claim 1.

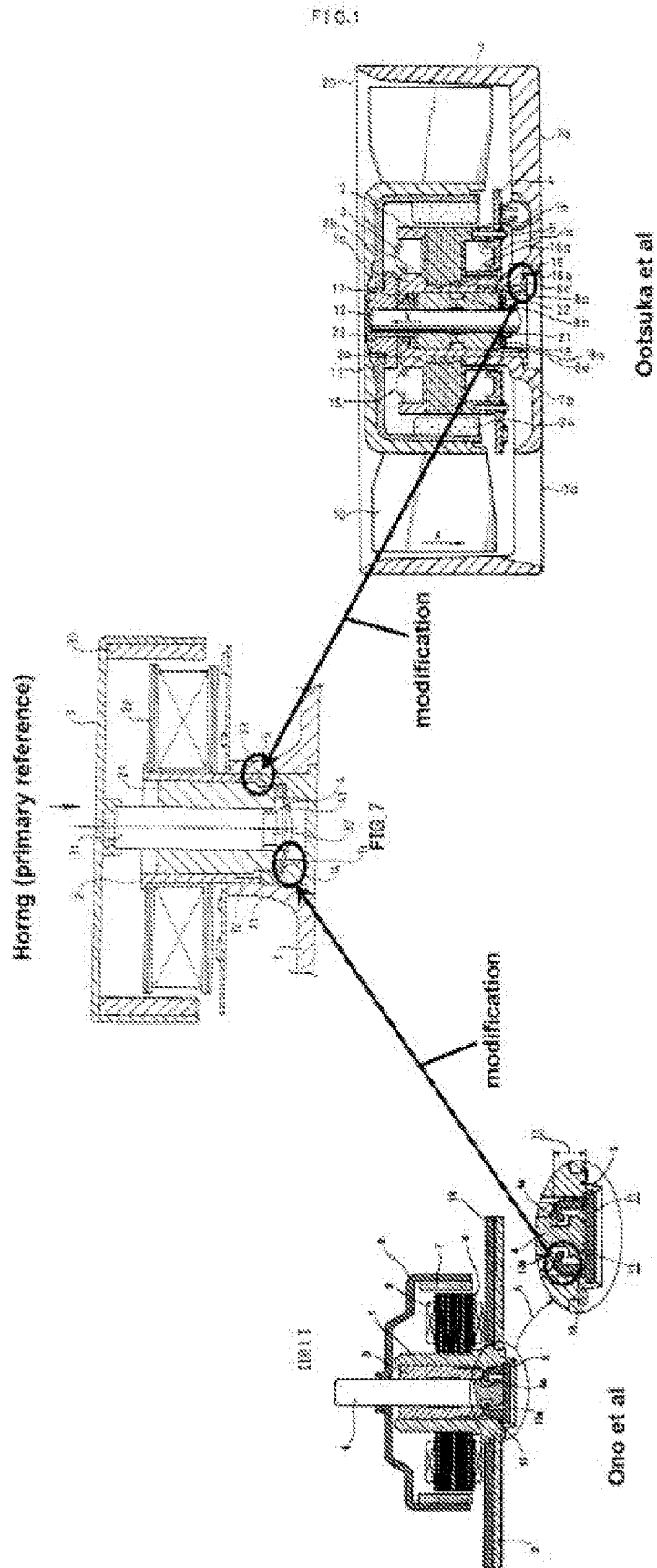
### ***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 1, 5, 7 -10, 12 – 19, 28 – 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1)





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24. In Re claim 1, with reference to Figure 7, Horng discloses a mini-fan (Column 2, Lines 49-50 state: "The casing 1 can be any conventional casing for a motor or heat dissipating fan") that comprises:

- a drive motor (Figures 7, 8, 10) having an external rotor (3) and an internal stator (22), the external rotor being equipped with a rotor shaft (31) that has a necked down portion (32) adjacent its free end (spherical distal end);
- a thrust bearing cooperating with said free end (the spherical distal end sits on the interior base of plug 14, therefore the interior base is a thrust bearing)
- a bearing tube (2) having a rotor-side end (attached to 33) and a bearing side end (spherical distal end) close to the thrust bearing
- the fan housing (1) having a support flange (radial extension of "axle seat 11") for said drive motor, formed with an opening (central hole of 11) to receive the bearing tube (which extends part way into the opening as depicted)
- said internal stator (22) being secured to an exterior of said bearing tube as depicted, there being arranged within said bearing tube, a bearing arrangement (21) in which said rotor shaft is rotatably supported (Column 2, Line 60 states: "...for rotatably holding a shaft")
- a closure arrangement (14) that closes off the bearing tube in liquid-tight fashion at its bearing side end (Column 2, Line 52-53 state: "plug 14 may be provided to SEAL an end of the axle hole), and is equipped adjacent the necked down portion of the rotor shaft (as depicted) with at least one resilient radially movable latching member (4) acting as a detent that engages into that necked down portion of the rotor shaft and,



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without disturbing normal operation of said rotor shaft, secures the rotor shaft against being pulled out of the bearing arrangement (Figure 8 shows the securing member extending into the necked down portion)

- note that the reference numeral (14) is also the cover portion which overlaps the flange (see annotation: "overlap" above in Figure 10)

25. However, Horng does not disclose a radial protrusion which abuts against a shoulder, the latching member being integrally formed and closure arrangement being made at least partly of thermoplastic material and laser welded to form the desired fluid tight connection (Horng clearly states that plug 14 seals the end).

26. Nevertheless, with reference to Figure 1 depicted above, Ootsuka et al discloses a fan motor where a lip at the end (8c') of the bearing holding part that is welded to a recess in part (16), the recess creates a shoulder in part (16).

27. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the end of the bearing tube of Horng so it has a lip (radial projection) as taught by Ootsuka et al, and to form a corresponding shoulder/recess as taught by Ootsuka et al in the flange section of the housing of Horng where the radial projection abuts the shoulder resulting in the bearing tube being held between the flange and the closure element, for the purpose of increasing the engaging strength between the axle tube and base.

28. Horng modified by Ootsuka et al as discussed above does not disclose that the latching member is integrally formed.

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29. Nevertheless, with reference to Figures 1 and 2 depicted above, Ono et al discloses a drive motor having an external rotor (6), an internal stator (9), rotor shaft (4), necked down portion (4a), bearing tube (1), closure arrangement (5, 13) with radially movable latching member (13a) that secures the rotor shaft from being pulled out of the bearing arrangement wherein:

- the closure member (5) and latching member (13a) are formed integrally with each another as stated in Paragraph [0031] of Ono et al: “.. invention is not limited to this ... FIXES the base end of the slip off stop member 13 to the ... thrust pad 5”

30. It would have been obvious to a person having ordinary skill in the art at the time of the invention to integrally form the closure arrangement and the resilient latching member of Horng as taught by Ono et al since it has been held that forming in one piece (making integral) an article which has formerly been formed in two pieces and put together involves only routine skill in the art - MPEP 2144.04 (V-B).

31. Horng modified by Ootsuka et al and Ono et al as discussed above discloses all the claimed limitations except for the closure arrangement being made at least partly of thermoplastic material and the cover portion (plug) laser welded to form the desired fluid tight connection (Horng clearly states that plug 14 seals the end but does not disclose what material it is made of).

32. Nevertheless, Paragraph [0015] of Strand et al discloses that two components can be selectively welded together to form a fluid tight seal (“selectively welding the two components together to form a fluid-tight seal”) and that thermoplastic material which is inherently transparent to laser light and is sufficiently clear and colorless to allow visual

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monitoring of the welding process: "PEEK is a high temperature resistant thermoplastic", "One advantage of using PEEK in the assembly of a fluid-handling substrate is that a selective IR welding process may be visually monitored, as PEEK in its amorphous form can be a sufficiently clear and optionally colorless material. Therefore, fluid-tight seals within the multi-layer substrate, such as those created using selective IR welding discussed elsewhere herein or other suitable methods, for example, may be inspected". Paragraph [0055] of Strand et al further suggests that thermoplastic material can be laser welded together to form a fluid tight seal: "The selective welding of substrate pieces together, e.g., two or more planar plastic pieces to be stacked together and selectively welded to form seals establishing fluid-tight channels within the resulting body, utilizes IR radiation, laser or the like, on the areas of the plastic pieces to be joined".

33. It would have been obvious to a person having ordinary skill in the art at the time of the invention to form the cover portion/plug (14) of Horng of thermoplastic material as taught by Strand et al and laser weld the cover portion to the flange for forming a substantially fluid-tight connection that is easy to visually inspect during and after the welding process. Note again that Horng requires the plug to seal the opening (fluid tight).

34. In Re Claim 5, Column 3, Lines 49-50 of Ootsuka et al suggest that the bearing tube (8a) is press fit (".. press fit on the inner face of the tubular part 16 ..") into the opening (16) formed in the flange (7b). Column 4, Lines 7-10 of Ootsuka et al disclose

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that a welding connection is formed between (8a) and (16b). As suggested by Strand et al, a laser weld produces a fluid tight joint.

35. In Re Claim 7, since the lip at the end (8c') of the bearing holding part that is welded to a recess in part (16) of Ootsuka et al, the bearing tube is held in a positively engaged manner between the closure arrangement and the flange.

36. In Re Claim 8, the "anchor"/"jutting top part" (8c') as disclosed by Ootsuka et al reads on a radial projection that is implemented as a flange.

37. In Re Claim 9, clearly the flange implementation is provided at the end of the bearing tube as depicted in Ootsuka et al.

38. In Re Claim 10, Horng discloses a spherical end cap which reads on the tracking cap as claimed, and the spherical distal end sits on the interior base of plug (14), therefore the interior base reads on a support surface as claimed.

39. In Re claim 12, Horng discloses resilient member (4) protrudes into the necked down portion without touching it as depicted in Figure 8.

40. In Re Claim 13, Horng depicts an intermediate section between the taper and the spherical distal end which reads on the spreading member. Ono et al depicts the

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resilient latching member which would have to be deflected in a radial direction when the shaft is fed through during installation.

41. In Re Claim 14, Column 3, Lines 60-63 of Horng disclose that the ring magnet (33) and the stator (22) attract each other to retain the rotor in place. Therefore the magnetic force between the two urges the rotor towards the closure arrangement.

42. In Re claims 15 and 16, Horng discloses that the closure arrangement is a plug that abuts the bearing tube at its opening as depicted, and in a liquid tight manner as discussed earlier.

43. In Re claim 17, Ootsuka et al discloses the lip which is an annular ridge and the recess which is the annular groove that are in a latching connection as depicted. The transition point can also be read as the weld discussed in claim 5. The weld in itself could be read as the groove/ridge combination.

44. In Re claim 18, as depicted in Figure 7 of Horng, in the vicinity of space (23), the tube (2) has a slightly higher inside diameter where the plug is received than the rest of the tube all the way to the top end.

45. In Re claim 19, Ootsuka et al discloses the portion that protrudes away is the ridge/lip installed in an opening/recess part.

46. In Re Claim 28, the bearing tube clearly has a larger diameter in the region of gap (23). The region of smaller diameter clearly receives bearing (21).

47. In Re Claim 29, Horng, Ootsuka et al, Ono et al and Strand et al as applied to Claims 1, 5 and 7 discloses all the claimed limitations.

48. In Re Claim 30, Horng, Ootsuka et al, Ono et al and Strand et al as applied to Claims 5 and 29 discloses all the claimed limitations.

49. In Re Claim 31, Horng, Ootsuka et al, Ono et al and Strand et al as applied to Claims 7 and 29 discloses all the claimed limitations.

50. In Re Claims 32 and 33, Horng, Ootsuka et al, Ono et al and Strand et al as applied to Claims 1 and 29 discloses all the claimed limitations.

51. In Re Claim 35, the intersection of the reduced diameter portion and increased diameter portion of the bearing tube of Horng reads on a constriction as claimed.

52. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view

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of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1), Horng et al (US Patent 6,819,021 B1) and Schafroth et al (PG Pub US 20020060954 A1 )

53. In Re claim 6, Horng, Ootsuka et al , Ono et al and Strand et al as applied to Claim 5 discloses all the claimed limitations except for the bearing tube being made of metal and epilam coated as claimed.

54. Nevertheless, Horng et al discloses "The axle tube 11 is preferably made of metal" in Column 1, Lines 33-34.

55. It would have been obvious to a person having ordinary skill in the art at the time of the invention to form the tube of Horng of metal as taught by Horng et al because it would be easy to machine to accurate dimensions.

56. Horng, Ootsuka et al , Ono et al, Strand et al and Horng et al as discussed above does not disclose that the bearing tube is epilam coated on its side pressed into the flange opening.

57. Nevertheless, Schafroth et al discloses in Paragraph [0053] that the meshing of parts can be epilamized.

58. It would have been obvious to a person having ordinary skill in the art at the time of the invention to apply a coating of epilam as taught by Schafroth et al to the "meshing" exterior of the bearing tube of Horng for the purpose of electrically insulating the housing from the tube since the tube is in contact with the stator (Paragraph [0053] of Schafroth et al states that epilam is a good insulator).

59. Claims 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1) and Alex et al (US Patent 6,756,714 B2)

60. In Re claim 11, Horng, Ootsuka et al, Ono et al and Strand et al as applied to claim 10 discloses all the claimed limitations except for the free end with the tracking cap is supported by a surface that is a depression and equipped with a lubricant.

61. Nevertheless, Alex et al discloses a free end of shaft (22) with a tracking cap (portion under the retainer 23) supported by a surface (Column 4, Lines 21-22: "..distal end of shaft 22 being rotatably supported by the support 35") that is a depression (15 or 35), and equipped with a lubricant (Column 4, Lines 50-52: "..allow flowing of the lubricating oil back to a space between a bottom of the oily bearing 34 and the support 35")

62. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the closure arrangement of Horng modified by Ono et al to incorporate a support surface depression with a lubricant as taught by Alex et al for the purpose of reducing wear due to friction between stationary and rotating parts and to further restrict radial vibrations of the shaft.



63. In Re Claim 34, Horng, Ootsuka et al, Ono et al and Strand et al as applied to claim 29 and Alex et al as applied to Claim 11 discloses all the claimed limitations.

64. Claims 20 - 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1) and Gruber et al (US Patent 4,783,608 A)

65. In Re claim 20, Horng and Ono et al as applied to claim 1 discloses all the claimed limitations except for a lamination stack, stator winding coils and a rigid electrical conductor extending parallel to rotation axis as claimed.

66. Nevertheless, Gruber et al discloses a lamination stack (12) with stator winding (Column 3, Line 18) and a rigid electrical conductor (18) extending parallel to rotation axis as depicted in Figure 1.

67. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the stator configuration of Horng to incorporate the rigid electrical conductor as taught by Gruber et al for the purpose of providing increased resistance to vibration because a rigid conductor is less prone to damage (from flexing) than a non rigid conductor.

68. In Re claim 21, Gruber et al discloses an outwardly protruding flange (17) with an orifice as depicted in Figure 1 for the passage of the electrical conductor (18).

69. In Re Claim 22, Figure 8 of Horng et al discloses a permanent magnet (33) that is clearly offset from the stator (22). Column 3, Lines 60-63 of Horng disclose that the ring magnet (33) and the stator (22) attract each other to retain the rotor in place. Therefore the magnetic force between the two urges the rotor towards the support surface.

70. Claims 23 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1) and Takehashi (US Patent 5,610,462 A)

71. In Re claim 23, there is clearly a transition region between the shaft (31) and rotor (3) where the end portion of the shaft is joined to the rotor. Horng and Ono et al as applied to claim 1 discloses all the claimed limitations as depicted except for a surface to throw off lubricant into the interior of the tube.

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72. Nevertheless, in Figure 1, Takehashi et al discloses a surface (58a) that is configured to throw off lubricant into the interior of the bearing tube (46c) during operation. The surface extends radially and located inside the bearing tube.

73. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the portion of Horng that is attached to the fan wheel to incorporate the lubricant throwing surface of Takehashi et al for the purpose of preventing the lubricant from leaking out as stated in the abstract of Takehashi et al.

74. In Re claim 24, the surface (58a) is an undercut as depicted in Takehashi et al.

75. In Re claim 25, Takehashi et al depicts an inwardly protruding portion (46d).

76. In Re claim 26, Takehashi et al depicts a gap between (58a) and (46d). Note that selecting the dimensions of the gap so it is a capillary that minimizes escape of lubricant would be routine skill in the art since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art - MPEP 2144.05 (II-B).

77. In Re claim 27, Takehashi et al depicts that the inwardly protruding portion (46d) forms an undercut with the element (46c).

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78. Claims 36, 38 – 41 and 43 - 44 rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1) and Fujinaka (US Patent 6,832,853 B2)

79. In Re Claim 36, Horng, Ootsuka et al, Ono et al and Strand et al as applied to Claim 35 discloses all the claimed limitations except for the inner side having a better machined surface.

80. Nevertheless, Fujinaka, in Column 6, Lines 35-40 states that the outer wall of the bearing and inner wall of the boss is protected from scratching, therefore suggesting a better machined surface over the area of contact between the bearing and the boss before they are press fit (Column 6, Line 44). Further, Column 6, lines 22-25 discloses a slightly greater inner diameter grooved wall. The surface finish is therefore worse for the greater inner diameter wall because of the grooves.

81. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have a better surface finish for the inner side of the constriction of Horng as compared to the other larger inner diameter unconstricted surface as taught by Fujinaka to form a better press fit with the bearing (than an unmachined surface).

82. In Re Claim 38, Fujinaka discloses in Figure 8 that the bearing (3) has a portion with an enlarged outside diameter, corresponding to reduced inside diameter of the

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bearing tube (24). It would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate the sintered bearing as taught by Fujinaka as the bearing of Horng because of the self lubricating property of sintered bearings.

83. In Re Claim 39, the bearing (3) of Fujinaka depicted in Figure 8 illustrates that its inner contact points with the shaft (4) are located on the outside portion, and have an enlarged inner diameter in the middle where it is not in contact with the shaft.

84. In Re claim 40, Fujinaka discloses that the contact areas between the shaft (4) and the bearing (3) are outside the contact area between the bearing (3) and tube (24).

85. In Re claim 41, Horng discloses that shaft (31) has a free end facing away from the fan wheel (3), and a closure member (14) as described in claim 1.

86. In Re Claim 43, Horng, Ootsuka et al, Ono t al, Strand et al as applied to Claim 10 discloses all the remaining claimed limitations.

87. In Re Claim 44, the latching member of Horng as well as Ono et al are clearly connected to the housing of the fan because the flange is part of the housing. Horng, Ootsuka et al, Ono t al, Strand et al as applied to Claim 17 discloses all the remaining claimed limitations.

88. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Ootsuka et al (US Patent 5,264,748 A) and in view of Ono et al (Japanese Patent JP 2002171712 A, English Translation) and further in view of Strand et al (PG Pub US 20020176804 A1) and Fujinaka (US Patent 6,832,853 B2) and Alex et al (US Patent 6,756,714 B2)

89. In Re Claim 42, Horng, Ootsuka et al, Ono et al, Strand et al and Fujinaka as applied to Claim 41 discloses all the claimed limitations except for a lubricant supply.

90. Nevertheless, Alex et al discloses a free end of shaft (22) with a tracking cap (portion under the retainer 23) supported by a surface (Column 4, Lines 21-22: "...distal end of shaft 22 being rotatably supported by the support 35") that is a depression (15 or 35), and equipped with a lubricant (Column 4, Lines 50-52: "...allow flowing of the lubricating oil back to a space between a bottom of the oily bearing 34 and the support 35")

91. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the closure arrangement of Horng modified by Ono et al to incorporate a support surface depression with a lubricant as taught by Alex et al for the purpose of reducing wear due to friction between stationary and rotating parts and to further restrict radial vibrations of the shaft.

### ***Response to Arguments***

92. Applicant has argued that Fujinaka states that it is practically impossible to realize the complete solid contact necessary to prevent leakage, and the applicant is therefore presumably arguing that the connection is not fluid-tight.

93. Examiner's Response: Fujinaka was relied on for the broader teaching that the cap/cover portion can be welded to a portion of the housing, which in Horng's case would be the flange. Jochami et al (Paragraph [0007]): "... lasers are normally used for thermoplastics welding") was relied on for laser welding as an alternate welding technique which clearly provides a fluid tight connection. Note that the claim language says "substantially" fluid-tight which is not the same as "completely" fluid tight, therefore the claim could be interpreted to allow for very small amounts of leakage.

### ***Conclusion***

94. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
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